REMARKS

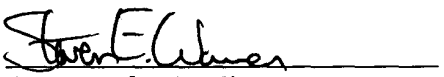
Applicants request favorable consideration and allowance of the subject application in view of the preceding amendments and the following remarks.

Claims 1-19 are presented for consideration. Claims 1, 7, 16 and 19 are independent. Claim 6 has been amended to clarify features of the subject invention. Support for this change can be found in the application as originally filed. Therefore, no new matter has been added.

Claims 1-19 previously allowed in this application. Applicants submit that the amendment to claim 6 does not affect the allowability of that claim. Therefore, Applicants further submit that the instant application is in condition for allowance. Favorable consideration and an early Notice of Allowance are requested.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should be directed to our address listed below.

Respectfully submitted,



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IN THE CLAIMS

Please AMEND claim 6, as follows. Note that all the claims currently pending in this application, including those not currently being amended, have been reproduced below for the Examiner's convenience.

1. (Previously Amended) A charged particle beam exposure system which draws a pattern on an object to be exposed by a plurality of charged particle beams emitted from a plurality of element optical systems, said system comprising:

(a) a storage device for storing:

(i) a standard dose data for controlling the irradiation of charged particle beams to an object to be exposed;

(ii) plural pieces of proximity effect correction data for correcting the irradiation of the charged particle beams for each incidence position with respect to the object to be exposed, in order to reduce the influence of a proximity effect; and

(iii) calibration data for correcting variations in the irradiation dose among the plurality of the charged particle beams emitted from the plurality of element optical systems; and

(b) a controller for controlling the irradiation of each of the charged particle beams, based on the standard dose data, the proximity effect correction data, and the calibration data.

2. (Original) A charged particle beam exposure system as claimed in claim 1, wherein the standard dose data includes bit map data which is determined depending on the pattern to be exposed.

3. (Original) A charged particle beam exposure system as claimed in claim 1, wherein the standard dose data includes the data defining the bit map data and a ratio of the irradiation time with respect to the non-irradiation time.

4. (Original) A charged particle beam exposure system as claimed in claim 1, further comprising obtaining means for obtaining the calibration data by measuring variations in the irradiation dose among a plurality of the charged particle beams.

5. (Original) A charged particle beam exposure system as claimed in claim 4, wherein said obtaining means includes a Faraday cup.

6. (Currently Amended) A charged particle beam exposure system as claimed in claim 1, further comprising selecting means for selecting one piece of data suitable for the proximity effect correction with respect to the standard dose data, from plural pieces of the proximity effect correction data stored in said ~~memory~~ storage device.

7. (Previously Amended) A method for correcting exposure data for drawing a pattern on an object to be exposed by a plurality of charged particle beams emitted from a plurality of element optical systems, said method comprising the steps of:

creating a standard dose data for each irradiation position of the charged particle beams in order to expose a standard pattern on the object to be exposed;

creating or renewing a plurality of the proximity effect correction data for each irradiation position, depending on conditions of the object to be exposed;

selecting any one piece of the proximity effect correction data, from plural pieces of the proximity effect correction data for each irradiation position;

performing a proximity effect correction with respect to the standard dose data based on the selected data, and exposing a pattern on the object to be exposed;

evaluating the exposed pattern, and judging whether the selected one piece of proximity effect correction data is the optimum data for controlling the standard dose data;

determining the optimum proximity effect correction data for controlling the standard dose data in accordance with the judgment;

measuring, by a sensor, the irradiation dose of the charged particle beams from each element optical system, the irradiation dose having been subjected to a correction by the proximity effect correction data; and

determining the calibration data of each of the element optical systems, based on the irradiation dose measured in said measuring step.

8. (Original) A method for correcting exposure data as claimed in claim 7, wherein whether the selected one piece of proximity effect correction data is the optimum data for controlling the standard dose data is judged by comparing the exposed pattern and the standard pattern by a visual inspection.

9. (Original) A method for correcting exposure data as claimed in claim 7, wherein whether the selected one piece of proximity effect correction data is the optimum data for controlling the standard dose data is judged by evaluating means for comparing the exposed pattern and the standard pattern.

10. (Original) A method for correcting exposure data as claimed in claim 7, wherein the standard dose data includes bit map data which is determined depending on the pattern to be exposed.

11. (Original) A method for correcting exposure data as claimed in claim 7, wherein the standard dose data includes the data defining the bit map data and the ratio of the irradiation time with respect to the non-irradiation time.

12. (Original) A method for correcting exposure data as claimed in claim 7, wherein the proximity effect correction data is data not depending on the pattern to be exposed, but depending on the conditions of the object to be exposed.

13. (Previously Amended) A method for correcting exposure data as claimed in claim 12, wherein the conditions are determined as at least one parameter among the fundamental conditions of the object to be exposed, the resist material, and a backward-scattering radius.

14. (Original) A method for correcting exposure data as claimed in claim 7, wherein the sensor in said measuring step includes a Faraday cup.

15. (Previously Amended) A method for manufacturing a device, comprising the steps of:

providing an exposure system as claimed in claim 1;

exposing a pattern on a wafer using the exposure system; and

assembling a device by processing the wafer on which the pattern has been exposed.

16. (Previously Added) An exposure apparatus for drawing a pattern on an object to be exposed by a plurality of charged particle beams which are divided from a charged particle beam emitted from a charged particle source, said apparatus comprising:

a controller for controlling the irradiation of the plurality of charged particle beams, based on (i) proximity effect correction data for correcting the plurality of charged particle beams for each incidence position with respect to the object to be exposed, in order to reduce the influence of a proximity effect, and (ii) calibration data for correcting variations in the irradiation dose among the plurality of charged particle beams.

17. (Previously Added) An exposure apparatus as claimed in claim 16, further comprising an aperture array for dividing the charged particle beam emitted from the charged particle source into the plurality of charged particle beams.

18. (Previously Added) A method of manufacturing a device, comprising the steps of:

providing an exposure apparatus as claimed in claim 16;

exposing a pattern on a wafer using the exposure apparatus; and

assembling a device by processing the wafer on which the pattern has been exposed.

19. (Previously Added) An exposure method of drawing a pattern on an object to be exposed by a plurality of charged particle beams which are divided from a charged particle beam emitted from a charged particle source, said method comprising the steps of:

controlling the irradiation of the plurality of charged particle beams, based on (i) proximity effect correction data for correcting the plurality of charged particle beams for each incidence position with respect to the object to be exposed, in order to reduce the influence of a proximity effect, and (ii) calibration data for correcting variations in the irradiation dose among the plurality of charged particle beams.